

DECLARATION

I, NOBUMITSU ASAHI, a Japanese Patent Attorney registered No. 10435, of Okabe International Patent Office at No. 602, Fuji Bldg., 2-3, Marunouchi 3-chome, Chiyoda-ku, Tokyo, Japan, hereby declare that I have a thorough knowledge of Japanese and English languages, and that the attached pages contain a correct translation into English of the priority documents of Japanese Patent Application No. 2000-318158 filed on October 18, 2000 in the name of CANON KABUSHIKI KAISHA.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made, are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

signed this 24th day of January, 2008



Nobumitsu Asahi

PATENT OFFICE
JAPANESE GOVERNMENT

This is to certify that the annexed is a true copy of the following application
as filed with this Office.

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Applicant(s): CANON KABUSHIKI KAISHA

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[Material]	Drawings	1
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[Document Title] SPECIFICATION

2000-318158

[Title of the Invention]

CENTRAL MANAGEMENT SYSTEM, METHOD AND STORAGE
MEDIUM FOR PERIPHERAL DEVICE

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[Claims]

1. A central management system of a peripheral
device, comprising:

- 10 a central management device having a wireless
base station function:
plural communication control devices having a
wireless mobile station function, said communication
control devices being wireless communicably connected
to said central management device;
- 15 a peripheral device connected to each of said
plural communication control devices;
memory means, equipped with said central
management device, for storing master identification
data to identify said central management device and a
20 slave identification data to identify each of said
plural communication control devices; and
a management center, connected to said central
management device through a communication network,
capable of remotely managing the peripheral device
25 through the communication network and said central
management device by identifying said central
management device and each of said plural

communication control devices based on the master identification data and the slave identification data stored in a storage unit of said central management device,

5 wherein said management center comprises
 identification data center holding means
for holding the master identification data and the
slave identification data, and

 identification data transfer means for
10 transferring the master identification data and the
slave identification data held by said identification
data center holding means to said central management
device through the communication network, and

 said central management device comprises
15 identification data storage means for storing the
master identification data and the slave
identification data transferred by said
identification data transfer means in the storage
unit.

20

2. A central management system according to
Claim 1, wherein the transfer by said identification
data transfer means is performed to a new central
management device when said central management device
25 is exchanged to said new central management device.

3. A central management system according to

Claim 1 or 2, wherein the holding by said
identification data center holding means and the
transfer by said identification data transfer means
are performed to the master identification data and
5 the slave identification data of all of the plural
communication control devices in a lump.

4. A central management system of a peripheral
device, comprising:

10 a central management device having a wireless
base station function:

plural communication control devices having a
wireless mobile station function, said communication
control devices being wireless communicably connected
15 to said central management device;

a peripheral device connected to each of the
plural communication control devices; and

memory means, equipped with said central
management device, for storing master identification
20 data to identify said central management device and a
slave identification data to identify each of said
plural communication control devices,

wherein, from a remote management center
connected to said central management device through a
25 communication network, the peripheral device can be
managed through the communication network and said
central management device by identifying said central

management device and each of said plural
communication control devices based on the master
identification data and the slave identification data
stored in a storage unit of said central management
5 device,

said central management system further
comprises:

identification data center slave holding
means for holding the master identification data and
10 the slave identification data in a specific
communication control device among said plural
communication control devices;

identification data transfer means for
transferring the master identification data and the
15 slave identification data held by said identification
data slave holding means to said central management
device through wireless communication from said
specific communication control device; and

identification data storage means for
20 storing the master identification data and the slave
identification data transferred by said
identification data transfer means in the storage
unit of said central management device.

25 5. A central management system according to
Claim 4, wherein said central management device and
said plural communication control devices can

communicate through PHS wireless data communication.

6. A central management system according to Claim 5, wherein the transfer by said identification data transfer means is performed by using an inter-slave direction communication mode in the PHS wireless data communication between said central management device and said specific communication control device.

10

7. A central management system according to any one of Claims 4 to 6, wherein the transfer by said identification data transfer means is performed to a new central management device when said central management device is exchanged to said new central management device.

15

8. A central management system according to any one of Claims 4 to 7, wherein the holding by said identification data slave holding means and the transfer by said identification data transfer means are performed to the master identification data and the slave identification data of all of the plural communication control devices in a lump.

25

9. A central management system of a peripheral device, comprising:

a central management device having a wireless base station function:

plural communication control devices having a wireless mobile station function, said communication
5 control devices being wireless communicably connected to said central management device;

a peripheral device connected to each of the plural communication control devices; and

memory means, detachably equipped with said
10 central management device, for storing master identification data to identify said central management device and a slave identification data to identify each of said plural communication control devices,

15 wherein, from a remote management center connected to said central management device through a communication network, the peripheral device can be managed through the communication network and said central management device by identifying said central
20 management device and each of said plural communication control devices based on the master identification data and the slave identification data stored in a storage unit of said central management device,

25 said central management system further comprises:

identification data storage means for

storing the master identification data and the slave identification data in the storage unit; and

releasing/attaching means for enabling to use the master identification data and the slave
5 identification data by, when said central management device is exchanged to a new central management device, releasing the storage unit in which the master identification data and the slave identification data have been stored by said
10 identification data storage means from said central management device and attaching said new central management device.

10. A central management method in a central
15 management system of a peripheral device, which system comprises: a central management device having a wireless base station function: plural communication control devices having a wireless mobile station function, said communication control
20 devices being wireless communicably connected to said central management device; a peripheral device connected to each of the plural communication control devices; memory means, equipped with said central management device, for storing master identification
25 data to identify said central management device and a slave identification data to identify each of said plural communication control devices; and a

management center, connected to said central management device through a communication network, capable of remotely managing the peripheral device through the communication network and said central management device by identifying said central management device and each of said plural communication control devices based on the master identification data and the slave identification data stored in a storage unit of said central management device,

wherein, in said management center, said central management method comprises

an identification data center holding step of holding the master identification data and the slave identification data, and

an identification data transfer step of transferring the master identification data and the slave identification data held in said identification data center holding step to said central management device through the communication network, and

in said central management device, said central management method comprises an identification data storage step of storing the master identification data and the slave identification data transferred in said identification data transfer step in the storage unit.

11. A central management method according to Claim 10, wherein the transfer in said identification data transfer step is performed to a new central management device when said central management device
5 is exchanged to said new central management device.

12. A central management method according to Claim 10 or 11, wherein the holding in said identification data center holding step and the
10 transfer in said identification data transfer step are performed to the master identification data and the slave identification data of all of the plural communication control devices in a lump.

13. A central management method in a central management system of a peripheral device, which system comprises: a central management device having a wireless base station function: plural communication control devices having a wireless
15 mobile station function, said communication control devices being wireless communicably connected to said central management device; a peripheral device connected to each of the plural communication control devices; and memory means, equipped with said central
20 management device, for storing master identification data to identify said central management device and a slave identification data to identify each of said
25

plural communication control devices, and
from a remote management center connected to
said central management device through a
communication network, the peripheral device can be
5 managed through the communication network and said
central management device by identifying said central
management device and each of said plural
communication control devices based on the master
identification data and the slave identification data
10 stored in a storage unit of said central management
device,
wherein said central management method
comprises:
an identification data center slave holding step
15 of holding the master identification data and the
slave identification data in a specific communication
control device among said plural communication
control devices;
an identification data transfer step of
20 transferring the master identification data and the
slave identification data held in said identification
data slave holding step to said central management
device through wireless communication from said
specific communication control device; and
25 an identification data storage step of storing
the master identification data and the slave
identification data transferred in said

identification data transfer step in the storage unit of said central management device.

14. A central management method according to
5 Claim 13, wherein said central management device and said plural communication control devices can communicate through PHS wireless data communication.

15 15. A central management method according to Claim 14, wherein the transfer in said identification data transfer step is performed by using an inter-slave direction communication mode in the PHS wireless data communication between said central management device and said specific communication control device.

16. A central management method according to any one of Claims 13 to 15, wherein the transfer in said identification data transfer step is performed
20 to a new central management device when said central management device is exchanged to said new central management device.

25 17. A central management method according to any one of Claims 13 to 16, wherein the holding in said identification data slave holding step and the transfer in said identification data transfer step

are performed to the master identification data and the slave identification data of all of the plural communication control devices in a lump.

- 5 18. A central management method in a central management system of a peripheral device, which system comprises: a central management device having a wireless base station function: plural communication control devices having a wireless
- 10 mobile station function, said communication control devices being wireless communicably connected to said central management device; a peripheral device connected to each of the plural communication control devices; and memory means, detachably equipped with
- 15 said central management device, for storing master identification data to identify said central management device and a slave identification data to identify each of said plural communication control devices,
- 20 from a remote management center connected to said central management device through a communication network, the peripheral device can be managed through the communication network and said central management device by identifying said central
- 25 management device and each of said plural communication control devices based on the master identification data and the slave identification data

stored in a storage unit of said central management device,

wherein said central management method comprises:

- 5 storing the master identification data and the slave identification data in the storage unit; and enabling to use the master identification data and the slave identification data by, when said central management device is exchanged to a new
- 10 central management device, releasing the storage unit in which the master identification data and the slave identification data have been stored by said identification data storage means from said central management device and attaching said new central
- 15 management device.

19. A storage medium which stores a program to be used for a central management method in a central management system of a peripheral device, which
- 20 system comprises: a central management device having a wireless base station function: plural communication control devices having a wireless mobile station function, said communication control devices being wireless communicably connected to said
- 25 central management device; a peripheral device connected to each of the plural communication control devices; memory means, equipped with said central

management device, for storing master identification data to identify said central management device and a slave identification data to identify each of said plural communication control devices; and a

5 management center, connected to said central management device through a communication network, capable of remotely managing the peripheral device through the communication network and said central management device by identifying said central

10 management device and each of said plural communication control devices based on the master identification data and the slave identification data stored in a storage unit of said central management device,

15 wherein said storage medium stores, in said management center,

a code of an identification data center holding step of holding the master identification data and the slave identification data, and

20 a code of an identification data transfer step of transferring the master identification data and the slave identification data held in said identification data center holding step to said central management device through the communication

25 network, and

said storage medium stores a code of an identification data storage step of storing, in said

central management device, the master identification data and the slave identification data transferred in said identification data transfer step in the storage unit.

5

20. A storage medium which stores a program to be used for a central management method in a central management system of a peripheral device, which system comprises: a central management device having
10 a wireless base station function: plural communication control devices having a wireless mobile station function, said communication control devices being wireless communicably connected to said central management device; a peripheral device
15 connected to each of the plural communication control devices; and memory means, equipped with said central management device, for storing master identification data to identify said central management device and a slave identification data to identify each of said
20 plural communication control devices, and

from a remote management center connected to said central management device through a communication network, the peripheral device can be managed through the communication network and said
25 central management device by identifying said central management device and each of said plural communication control devices based on the master

identification data and the slave identification data stored in a storage unit of said central management device,

wherein said storage medium stores:

- 5 a code of an identification data center slave holding step of holding the master identification data and the slave identification data in a specific communication control device among said plural communication control devices;
- 10 a code of an identification data transfer step of transferring the master identification data and the slave identification data held in said identification data slave holding step to said central management device through wireless
- 15 communication from said specific communication control device; and
- a code of an identification data storage step of storing the master identification data and the slave identification data transferred in said
- 20 identification data transfer step in the storage unit of said central management device.

[Detailed Description of the Invention]

[0001]

25 [Technical Field to which Invention Belongs]

The present invention relates to a central management system of a peripheral device which

remotely controls the peripheral device such as a copy machine or the like through a communication line, a central management method of the central management system, and a storage medium of storing a program to
5 execute the central management method.

[0002]

[Prior Art]

Conventionally, it is general that a service person that has professional knowledge periodically
10 goes to the location where a peripheral device such as a copy machine or the like has been placed and performs a maintenance and inspection service thereof. Recently there is being utilized a remote central management system capable of achieving maintenance
15 workings in the maintenance and inspection service in a remote location.

[0003]

Fig. 10 is a view showing the entire configuration of a conventional remote central
20 management system for copying machines.

[0004]

Plural copying machines 506 are connected through respective control devices 501a, 501b to a management device 503, which is connected by a modem
25 502 to a communication network 504 through a telephone line 507. A management center 505 is composed by connecting a personal computer (PC) 509

to a line control device 508, which is connected to the communication network 504 through the telephone line 507. The management center 505 manages various trouble data of the copying machine.

5 [0005]

In this system, a trouble (paper jamming, no toner etc.) generated in the copying machines 506 is informed by the control devices 501a, 501b to the management device 503 and further informed to the
10 management center 505 through the modem 502 by way of the telephone line 507 and the communication network 504, whereby the maintenance etc. conventionally executed by the service person can be achieved from a remote location.

15 [0006]

In this system, the control devices 501a, 501b and the management device 503 are often wire-connected, there is a problem that wiring workings are cumbersome in layout changes and moving of an
20 office. To solve this problem, a remote-location central management system of copy machine using wireless communication technology has been already known. A typical wireless communication technique is PHS (Personal Handy-phone System). A system utilizing
25 the PHS communication technology can be constructed by providing the management device 503 with a master function while providing the control devices 501a,

501b with a slave function and registering the slave devices in the master management device 503.

[0007]

Fig. 11 is a chart showing the sequence of slave
5 device registration in the remote central management system.

[0008]

The sequence chart only shows the principal messages but omits a part of the basic messages. The
10 details are based on the standard RCRSTD-28.

[0009]

At first each of the management device 503 constituting the master device and the control device 501 constituting the slave device are respectively
15 given a function of entering a command and displaying the result of input or connected to a terminal device such as a keyboard. In the registering operation, a registration start command is entered almost simultaneously in the master device and in the slave
20 device, whereby both shift the registration mode.

[0010]

Along the sequence shown in Fig. 11, "registration start" commands are entered almost simultaneously into the master device and the slave
25 device, whereby they respectively enter the "registration mode".

[0011]

Then, in the master device, there are entered an extension number of the slave device (assumed as "11") and a password (assumed as "1234") whereupon the master device transmits an informing signal for the registration mode to the slave device.

[0012]

On the other hand, also in the slave device, there are entered numbers same as the "slave extension number" and the "password" entered in the master device, whereby initiated is a CS search for identifying the master device transmitting the above-mentioned informing signal for the registration mode. If such search identifies a corresponding master device, a slave data writing sequence executes a registration process after confirming the coincidence of the "slave extension number" and the "password" entered respectively in the master device and the slave device, whereby the registration of the slave device into the master device is completed.

[0013]

Also in case of registering plural slave devices at the same time in the master device, there can be conceived a method of entering "slave extension number" and "password" of the plural slave devices in advance in the master device and dispensing with the input process for the registration parameter for each slave device in the master device thereby enabling

registration of the slave devices in continuous manner.

[0014]

Fig. 12 is a sequence chart showing the registration (continuous registration) in such remote central management system.

[0015]

In case of continuous registration, the registration information ("slave extension number" and "password") of the plural slave devices to be registered are entered in advance from a terminal device such as a PC (through the communication network in actual) to the master device. The registration work is initiated by receiving a "registration start" command in the master device and substantially simultaneously entering the "registration start" command in the slave device to be registered first. The master device, having received the registration information (slave extension number and password) of the first slave device from the parameters of the slaves devices entered in advance, transmits the information signal for the registration mode to such slave device.

[0016]

On the other hand, if the slave device finds a corresponding master device in the CS search as explained in the foregoing, it confirms that the

"slave extension numbers" and the "passwords" entered respectively in the master device and the slave device mutually coincide in the slave data writing sequence and then executes the registration process, 5 whereby the registration for the first slave device into the master device is completed.

[0017]

After the registration of the first slave device, the initially entered registration information for 10 the second slave device is confirmed between the master device and the PC, and the registration process is repeated in a similar manner as in the first slave device, whereby the registration is executed for the plural slave devices.

15 [0018]

Also the management device, in the course of managing plural registered slave devices, may have to stop the function as the master device for a certain period in case of a failure for some reason or in 20 case of maintenance. In such case the system can be restored by replacing the management device with another management device of a same configuration and registering all the plural slave devices in the net management device. In this case, if the number of the 25 slave devices to be registered is few such as one or two, it is relatively easy to continue to operate the system by executing the registration of the slave

devices to be registered in the same manner as conventional.

[0019]

[Problem to be Solved by the Invention]

5 However, in the conventional central management system as described above, in case of replacing the master device in such central management system, the operation of repeating the registration requires an enormous time and is cumbersome as the number of the
10 slave devices to be registered increases. For this reason, there is a problem that it is not easy to continue and restore the system.

[0020]

 In consideration of the foregoing, an object of
15 the present invention is to provide central management system, method and storage medium for the peripheral devices, capable of executing maintenance and restoration of the system easily in a short time.

[0021]

20 [Means and Operations for Solving the Problems]

 To achieve the above object, the present invention is characterized by a central management system of a peripheral device, comprising:

 a central management device having a wireless
25 base station function:

 plural communication control devices having a wireless mobile station function, the communication

control devices being wireless communicably connected to the central management device;

a peripheral device connected to each of the plural communication control devices;

5 memory means, equipped with the central management device, for storing master identification data to identify the central management device and a slave identification data to identify each of the plural communication control devices; and

10 a management center, connected to the central management device through a communication network, capable of remotely managing the peripheral device through the communication network and the central management device by identifying the central
15 management device and each of the plural communication control devices based on the master identification data and the slave identification data stored in a storage unit of the central management device,

20 wherein the management center comprises
 identification data center holding means for holding the master identification data and the slave identification data, and

 identification data transfer means for
25 transferring the master identification data and the slave identification data held by the identification data center holding means to the central management

device through the communication network, and

the central management device comprises
identification data storage means for storing the
master identification data and the slave

5 identification data transferred by the identification
data transfer means in the storage unit.

[0022]

To achieve the same object, the present
invention is characterized by a central management
10 system of a peripheral device, comprising:

a central management device having a wireless
base station function:

plural communication control devices having a
wireless mobile station function, the communication
15 control devices being wireless communicably connected
to the central management device;

a peripheral device connected to each of the
plural communication control devices; and

memory means, equipped with the central
20 management device, for storing master identification
data to identify the central management device and a
slave identification data to identify each of the
plural communication control devices,

wherein, from a remote management center
25 connected to the central management device through a
communication network, the peripheral device can be
managed through the communication network and the

central management device by identifying the central
management device and each of the plural
communication control devices based on the master
identification data and the slave identification data
5 stored in a storage unit of the central management
device,

the central management system further comprises:
identification data center slave holding
means for holding the master identification data and
10 the slave identification data in a specific
communication control device among the plural
communication control devices;

identification data transfer means for
transferring the master identification data and the
15 slave identification data held by the identification
data slave holding means to the central management
device through wireless communication from the
specific communication control device; and

identification data storage means for
20 storing the master identification data and the slave
identification data transferred by the identification
data transfer means in the storage unit of the
central management device.

[0023]

25 To achieve the same object, the present
invention is characterized by a central management
system of a peripheral device, comprising:

a central management device having a wireless base station function:

plural communication control devices having a wireless mobile station function, the communication
5 control devices being wireless communicably connected to the central management device;

a peripheral device connected to each of the plural communication control devices; and

memory means, detachably equipped with the
10 central management device, for storing master identification data to identify the central management device and a slave identification data to identify each of the plural communication control devices,

15 wherein, from a remote management center connected to the central management device through a communication network, the peripheral device can be managed through the communication network and the central management device by identifying the central
20 management device and each of the plural communication control devices based on the master identification data and the slave identification data stored in a storage unit of the central management device,

25 the central management system further comprises:
identification data storage means for storing the master identification data and the slave

identification data in the storage unit; and

releasing/attaching means for enabling to
use the master identification data and the slave
identification data by, when the central management
5 device is exchanged to a new central management
device, releasing the storage unit in which the
master identification data and the slave
identification data have been stored by the
identification data storage means from the central
10 management device and attaching the new central
management device.

[0024]

To achieve the same object, the present
invention is characterized by a central management
15 method in a central management system of a peripheral
device, which system comprises: a central management
device having a wireless base station function:
plural communication control devices having a
wireless mobile station function, the communication
20 control devices being wireless communicably connected
to the central management device; a peripheral device
connected to each of the plural communication control
devices; memory means, equipped with the central
management device, for storing master identification
25 data to identify the central management device and a
slave identification data to identify each of the
plural communication control devices; and a

management center, connected to the central
management device through a communication network,
capable of remotely managing the peripheral device
through the communication network and the central
5 management device by identifying the central
management device and each of the plural
communication control devices based on the master
identification data and the slave identification data
stored in a storage unit of the central management
10 device,

wherein, in the management center, the central
management method comprises

an identification data center holding step
of holding the master identification data and the
15 slave identification data, and

an identification data transfer step of
transferring the master identification data and the
slave identification data held in the identification
data center holding step to the central management
20 device through the communication network, and

in the central management device, the central
management method comprises an identification data
storage step of storing the master identification
data and the slave identification data transferred in
25 the identification data transfer step in the storage
unit.

[0025]

To achieve the same object, the present invention is characterized by a central management method in a central management system of a peripheral device, which system comprises: a central management
5 device having a wireless base station function: plural communication control devices having a wireless mobile station function, the communication control devices being wireless communicably connected to the central management device; a peripheral device
10 connected to each of the plural communication control devices; and memory means, equipped with the central management device, for storing master identification data to identify the central management device and a slave identification data to identify each of the
15 plural communication control devices, and
from a remote management center connected to the central management device through a communication network, the peripheral device can be managed through the communication network and the central management
20 device by identifying the central management device and each of the plural communication control devices based on the master identification data and the slave identification data stored in a storage unit of the central management device,
25 wherein the central management method comprises:
an identification data center slave holding step of holding the master identification data and the

slave identification data in a specific communication control device among the plural communication control devices;

an identification data transfer step of
5 transferring the master identification data and the slave identification data held in the identification data slave holding step to the central management device through wireless communication from the specific communication control device; and

10 an identification data storage step of storing the master identification data and the slave identification data transferred in the identification data transfer step in the storage unit of the central management device.

15 [0026]

To achieve the same object, the present invention is characterized by a central management method in a central management system of a peripheral device, which system comprises: a central management
20 device having a wireless base station function: plural communication control devices having a wireless mobile station function, the communication control devices being wireless communicably connected to the central management device; a peripheral device
25 connected to each of the plural communication control devices; and memory means, detachably equipped with the central management device, for storing master

identification data to identify the central management device and a slave identification data to identify each of the plural communication control devices,

5 from a remote management center connected to the central management device through a communication network, the peripheral device can be managed through the communication network and the central management device by identifying the central management device
10 and each of the plural communication control devices based on the master identification data and the slave identification data stored in a storage unit of the central management device,

 wherein the central management method comprises:
15 storing the master identification data and the slave identification data in the storage unit; and
 enabling to use the master identification data and the slave identification data by, when the central management device is exchanged to a new
20 central management device, releasing the storage unit in which the master identification data and the slave identification data have been stored by the identification data storage means from the central management device and attaching the new central
25 management device.

[0027]

To achieve the same object, the present

invention is characterized by a storage medium which stores a program to be used for a central management method in a central management system of a peripheral device, which system comprises: a central management
5 device having a wireless base station function: plural communication control devices having a wireless mobile station function, the communication control devices being wireless communicably connected to the central management device; a peripheral device
10 connected to each of the plural communication control devices; memory means, equipped with the central management device, for storing master identification data to identify the central management device and a slave identification data to identify each of the
15 plural communication control devices; and a management center, connected to the central management device through a communication network, capable of remotely managing the peripheral device through the communication network and the central
20 management device by identifying the central management device and each of the plural communication control devices based on the master identification data and the slave identification data stored in a storage unit of the central management
25 device,

wherein the storage medium stores, in the management center,

a code of an identification data center holding step of holding the master identification data and the slave identification data, and

a code of an identification data transfer
5 step of transferring the master identification data and the slave identification data held in the identification data center holding step to the central management device through the communication network, and

10 the storage medium stores a code of an identification data storage step of storing, in the central management device, the master identification data and the slave identification data transferred in the identification data transfer step in the storage
15 unit.

[0028]

To achieve the same object, the present invention is characterized by a storage medium which stores a program to be used for a central management
20 method in a central management system of a peripheral device, which system comprises: a central management device having a wireless base station function: plural communication control devices having a wireless mobile station function, the communication
25 control devices being wireless communicably connected to the central management device; a peripheral device connected to each of the plural communication control

devices; and memory means, equipped with the central management device, for storing master identification data to identify the central management device and a slave identification data to identify each of the
5 plural communication control devices, and

from a remote management center connected to the central management device through a communication network, the peripheral device can be managed through the communication network and the central management
10 device by identifying the central management device and each of the plural communication control devices based on the master identification data and the slave identification data stored in a storage unit of the central management device,

15 wherein the storage medium stores:

a code of an identification data center slave holding step of holding the master identification data and the slave identification data in a specific communication control device among the plural
20 communication control devices;

a code of an identification data transfer step of transferring the master identification data and the slave identification data held in the identification data slave holding step to the central
25 management device through wireless communication from the specific communication control device; and

a code of an identification data storage step of

storing the master identification data and the slave identification data transferred in the identification data transfer step in the storage unit of the central management device.

5 [0029]

[Embodiments]

The present invention will be described will be described with reference to the attached drawings.

[0030]

10 (First Embodiment)

Fig. 1 is a block diagram showing the entire configuration of a central management system for peripheral device, constituting a first embodiment of the present invention.

15 [0031]

Plural copying machines (peripheral devices) 106 are so connected as to be capable of communication with a central management device 103 by PIAFS (PHS internet access forum standard) respectively through communication control devices 101a, 101b. The central management device 103 is connected by a modem 102 to a communication network 104 through a telephone line 107. A management center 105 is composed by connecting a personal computer (PC) 109
20 (identification data center holding means) to a line control device 108 (identification data transfer means), which is connected to the communication

25

network 104 through the telephone line 107. The plural copying machines 106 and the communication control devices 101 may also be present in three or more units.

5 [0032]

The object of the present system is to manage various trouble data of the copying machines and execute maintenance etc. In the present system, a trouble (paper jamming, no toner etc.) generated for
10 example in the copying machine 106 is informed by the communication control device 101a to the central management device 103 utilizing the PHS wireless communication based on the PIAFS communication protocol, and is further informed to the management
15 center 107 through the modem 102, utilizing the telephone line 107 and the communication network 104. That is, there are two routes for informing. Thus, the regular service, maintenance and the like that conventionally the service person goes to the place
20 and executes can be performed at remote location.

[0033]

In order to construct the present system, all the communication control device 101 (a, b, ..., n) to be managed by the central management device 103 have
25 to be registered as the slave PHS devices in the central management device 103 serving as the master PHS device.

[0034]

Fig. 2 is a block diagram showing the configuration of the central management device 103.

In Fig. 2, there are shown the central management
5 device 103 together with the modem 102 and a keyboard
208 with a display unit.

[0035]

The central management device 103 is composed of
a wireless transmission/reception unit 204, a PIAFS
10 control unit 206, an interface processing unit 206, a
volatile memory unit 202, a control unit 201
(identification data storage means) and a non-
volatile memory unit 207 (storage unit). The control
unit 201 is connected to the wireless
15 transmission/reception unit 204, the PIAFS control
unit 205, the volatile memory unit 202 and the non-
volatile memory unit 207. The wireless
transmission/reception unit 204, the PIAFS control
unit 205 and the interface processing unit 206 are
20 serially connected. An antenna 203 is connected to
the wireless transmission/reception unit 204, and the
interface processing unit 206 connects the modem 102
and the keyboard 208 with the display unit.

[0036]

25 The wireless transmission/reception unit 204
exchanges various wireless data with the
communication control devices 101 through the antenna

203. The PIAFS control unit 205 executes conversion, based on the PIAFS protocol, on the wireless data transmitted or received by the wireless transmission/reception unit 204.

5 [0037]

Fig. 3 shows the data configuration in the non-volatile memory unit 207 of the central management device 103.

[0038]

10 When the present system is operated, the plural communication control devices 101a, 101b are registered in the non-volatile memory unit 207. As the internal structure, there are provided a CS identifier (master identifying data) for identifying
15 the central management device 103 itself, and a PS identifier (PS1 to PSn) (slave identifying data) for identifying the registered individual communication control devices 101a, 101b.

[0039]

20 Also the central management device 103 may be replaced by another central management device of the same configuration in case of a failure for some reason in the course of operation of the central management device 103 under operation or in case of
25 maintenance. In such case, since the communication control devices 101 under current operation are not registered in the new central management device, the

CS identifiers and the PS identifiers, necessary for transmitting the information signal etc., have to be registered again in the new central management device after the replacement. More specifically, it is
5 necessary to reconstruct the data structure as shown in Fig. 3 in the non-volatile memory unit of the new central management device by a suitable method.
[0040]

The data of the registered CS identifiers and PS
10 identifiers are stored, also in the management center 105 as well as the central management device 103, in 1-to-1 correspondence to the number data of the telephone lines held by the central management device 103 in the communication network 104.
15 [0041]

Fig. 4 is a block diagram showing the configuration of the communication control device 101, together with the copying machine 106 and the keyboard 408 with display.
20 [0042]

The communication control device 101 is composed of a wireless transmission/reception unit 404, a PIAFS control unit 405, an interface processing unit 406, a volatile memory unit 402, a control unit 401
25 (a part of identification data slave holding means) and a non-volatile memory unit 407 (a part of identification data slave holding means). The control

unit 401 is connected to the wireless transmission/reception unit 404, the PIAFS control unit 405, the volatile memory unit 402 and the non-volatile memory unit 407. The wireless transmission-
5 reception unit 404, the PIAFS control unit 405 and the interface processing unit 406 are serially connected. An antenna 403 is connected to the wireless transmission/reception unit 404, and the interface processing unit 406 connects the copying
10 machine 106 and the keyboard 408 with display.
[0043]

The wireless transmission/reception unit 404 exchanges various wireless data with the central management device 103 through the antenna 403. The
15 PIAFS control unit 405 executes conversion, based on the PIAFS protocol, on the wireless data transmitted or received by the wireless transmission/reception unit 404.
[0044]

20 In the following there will be explained the process of replacing the central management device 103 under current use with another central management device of the same configuration (also represented as central management device 103) in case of a failure
25 or for maintenance.
[0045]

Fig. 5 is a sequence chart showing a

registration data transmission/reception process to be executed between the management center 105 and the central management device 103 in the present embodiment.

5 [0046]

The sequence chart only shows the principal messages but omits a part of the basic messages. The details are based on the standard RCRSTD-28.

[0047]

10 Fig. 6 is a flow chart showing a process to be executed in the management center 105 within the registered data transmission-reception process, and Fig. 7 is a flow chart showing a process to be executed in the central management device 106 within
15 the registered data transmission/reception process. The sequence of the registration data transmission/reception process shown in Fig. 5 proceeds by parallel execution of the processes shown in Figs. 6 and 7. In the following, the process will
20 be explained with reference to Figs. 5 to 7.

[0048]

The central management device 103 under current use is replaced by the new central management device 103, which is then connected as the PHS master device
25 to the modem 102. As shown in Fig. 5, the operator manipulates the keyboard 208 with display connected to the new central management device 103 to activate

the registration mode, whereby the keyboard 208 with keyboard sends a registration mode activation message M601 to the central management device 103. When the central management device 103 detects the activation
5 of the registration mode, the central management device 103 transmits a call setting request message M602 for establishing a call to the management center 105 through the modem 102, the telephone line 107 and the communication network 104. The call setting
10 request message M602 includes a call number. The call setting request message M602 is supplied through the communication network 104 to the management center 105. Upon receiving the call setting request message M602 by the line control device 108, the management
15 center 105 transmits a call reception message M603 to the PC 109 which stores various data such as registration data.

[0049]

Upon receiving the call reception message M603,
20 the PC 109 confirms the call number, and, if the data such as the telephone line etc. used by the partner central management device 103 is already registered in the memory unit 502, transmits a response message M604 to the line control device 108. In response the
25 line control device 108 transmits a response message M605 to the central management device 103 and also transmits a communicating message M607 to the PC 109

in order to inform that it has responded to the partner and has shifted into a communicating state. The line connecting process is thus executed by the transmission and reception of the response messages
5 M604, M605 and the communicating message M607.
[0050]

On the other hand, upon receiving the response message M605 from the management center 105, the central management device 103 transmits a
10 communicating message M606 to the keyboard 208 with display in order to inform that it has received the response message M605 and has shifted into a communicating state. Thereafter the management center 105 and the central management device 103 shift into
15 the communicating state M608.
[0051]

Upon receiving the communicating message M606, the keyboard 208 with display displays the shift to the communicating state with the management center
20 105. The operator, in order to re-register the CS identifier and the PS identifier necessary for transmitting the information signal etc. after the replacement of the central management device 103, manipulates the keyboard 208 with display to activate
25 the identification data registration process for the central management device 103. At first the keyboard 208 with display transmits a collective registration

start message M609 to the central management device 103. In response, the central management device 103 returns a password input message M610 requesting the input of a password to the keyboard 208 with display.

5 Upon receiving the password input message M610, the keyboard 208 with display displays a password input image. The operator enters a password, and the keyboard 208 with display transmits a password setting message M611 to the central management device

10 103.

[0052]

In response to the password setting message M611, the central management device 103 transmits a registration mode start message M613 to the keyboard

15 208 with display in order to inform the start of a collective registration mode, and also transmits an identification data collective transmission request message M612 to the management center 105.

[0053]

20 Having received the identification data collective transmission request message M612, the line control device 108 transmits an identification data request message M614 to the PC 109. Having received the identification data request message M614,

25 the PC 109 transmits a collective transmission request message M615 to the line control device 108. Having received the collective transmission request

message M615, the line control device 108 returns a password? input message M616, requesting the input of the password?, to the PC 109. Having received the password? input message M616, the PC 109 enters the
5 password and transmits a password setting message M617 to the line control device 108.

[0054]

Having received the password setting message M617, the line control device 108 transmits a
10 collective transmission permitting message M618 to the central management device 103 in order to inform that the request for the collective registration has been received, and also transmits a registration mode start message M619 to the PC 109 in order to inform
15 that the collective registration mode has been started.

[0055]

Thereafter, the transmission process in the management center 105 and the registration process in
20 the central management device 103 are respectively executed employing a data writing sequence M620. More specifically, the registration data transferred from the management center 105 are stored in the non-volatile memory unit 207 of the new central
25 management device 103, whereby the data as shown in Fig. 3 are reconstructed and the system is thus restored.

[0056]

When the registration process is completed by the data writing sequence M620, registration success messages M621, M622 are respectively transmitted from
5 the line control device 108 to the PC 109 and from the central management device 103 to the keyboard 208 with display, thereby informing the completion of the collective registration process.

[0057]

10 In the following, the aforementioned process will be viewed from the side of the management center 105 with reference to Fig. 6.

[0058]

At first there is discriminated whether an
15 incoming call has been received, namely whether an incoming call message M603 has been received by the PC 109 (step S701). The discrimination is continued until an incoming call is received, and, in case the PC 109 receives the incoming call message M603, the
20 PC 109 confirms the call number (step S702) and discriminates whether the data for example of the telephone line used by the partner central management device 103 are already registered in the memory unit 502 (step S703). If the discrimination identifies
25 that the data are not yet registered, there is executed a disconnection/restoration process (step S704) whereupon the present process is terminated. On

the other hand, if the data are already registered, there is executed the aforementioned line connecting process (transmission/reception of the response message M604 and the communicating message M607)

5 (step S705).
[0059]

Then there is discriminated whether the identification data collective transmission request message M612 has been received from the central management device 103 (step S706). If the discrimination identifies that the identification data collective transmission request message M612 has been received from the central management device 103, the line control device 108 executes transmission process for the identification data memorized in the memory unit 502 of the PC 109, utilizing the data writing sequence M620 (step S708), whereupon the present process is terminated. On the other hand, if the identification data collective transmission request message M612 is not received from the central management device 103 (for example in case of receiving an ordinary request message for various data), there is executed an ordinary process different from the process of the registration mode (step S707), whereupon the present process is terminated.

[0060]

Now the aforementioned process will be viewed from the side of the central management device 103, with reference to Fig. 7.

[0061]

5 At first there is discriminated whether the activation of the registration mode has been detected (step S801). The discrimination is continued until the activation of the registration mode is detected, and, when the activation of the registration mode is
10 detected, there is transmitted a call setting request message M602 for establishing a call to the management center 105 (step S802). Then there is discriminated whether the response message M605 has been received from the management center 105 (step
15 S803). The discrimination is repeated until the response message M605 is received, and, when the response message M605 is received, the identification data collective transmission request message M612 is transmitted to the management center 105 (step S804).

20 [0062]

 Then there is discriminated whether the collective transmission permitting message M618 has been received from the management center 105 (step S805). If the discrimination identifies that the
25 collective transmission permitting message M618 has been received, the identification data registration process is executed utilizing the data writing

sequence M620 to reconstruct the data as shown in Fig. 3 in the non-volatile memory unit 207 of the new central management device 103 (step S806) whereupon the present process is terminated.

5 [0063]

On the other hand, if the collective transmission permitting message M618 has not been received, the collective registration process from the management center 105 is not permitted, so that
10 the disconnection/restoration process is executed (step S807) whereupon the present process is terminated.

[0064]

According to the present embodiment, in case the
15 currently used central management device 103 is replaced by another central management device because of a failure or for maintenance, the registration data (CS identifiers and PS identifiers) stored in the management center 105 are transferred to the new
20 central management device 103 to reconstruct the data shown in Fig. 3 in the non-volatile memory unit 207, so that the registration process can be completed within a short time even if there are many communication control devices 101 to be registered.
25 Thus, in the replacement to the new central management device, the acquisition of the registration data can be facilitated to achieve

maintenance and restoration of the system easily within a short time.

[0065]

Also the transfer and writing of the
5 registration data (CS identifiers, PS identifiers)
are executed collectively for all the communication
control devices 101, so that the acquisition of the
registration data can be executed in efficient manner
to achieve maintenance and restoration of the system
10 easily within a short time.

[0066]

(Second Embodiment)

The second embodiment of the present invention
will be described with reference to Figs. 1 to 4 and
15 8.

[0067]

In the present embodiment, the new central
management device 103 acquires the PS identifier and
the CS identifier from a specified communication
20 control device 101 instead of the management center
105. Therefore, such embodiment is similar to the
first embodiment in the basic configuration but is
different therefrom in the registration data
transmission/reception process.

25 [0068]

Fig. 8 is a sequence chart showing the
registration data transmission/reception process

executed between the central management device 103 and the communication control device 101 in the present embodiment.

[0069]

5 The communication control device 101 used in the present sequence is, among the plural communication control devices 101, a particular communication control device holding in advance the identification data (Fig. 3) of the PS identifiers of all the
10 communication control devices 101 and the CS identifier of the central management device 103, and is called a master slave device.

[0070]

 The communication control device 101 serving as
15 the master slave device (hereinafter called "master communication control device") can be arbitrarily selected and stores the PS identifiers and the CS identifier in the non-volatile memory unit 407. There may also be provided two or more master communication
20 control devices 101.

[0071]

 In case the currently used central management device 103 is replaced by another central management device of the same configuration for some reason, the
25 new central management device 103 is connected as the master PHS device to the modem 102. The process thereafter is executed according to the sequence

chart of the registration data transmission/reception process shown in Fig. 8. In order to execute the present sequence, the central management device 103 and the master communication control device 101
5 respectively execute predetermined processes as in the first embodiment.

[0072]

At first, in order to establish the registration mode between the central management device 103 and
10 the master communication control device 101, a registration start message M901 is transmitted from the keyboard 208 with display connected to the central management device 103 to the central management device 103. Having received the
15 registration start message M901, the central management device 103 returns a registration mode? input message M902, requesting the input of the registration mode?, to the keyboard 208 with display.

[0073]

20 Having received the registration mode? input message M902, the keyboard 208 with display transmits a collective reception start message M903 to the central management device 103. Having received the collective reception start message M903, the central
25 management device 103 returns a password? input message M904, requesting the input of the password?, to the keyboard 208 with display, which, in response,

displays a password input image. When the operator enters the password, the keyboard 208 with display transmits a password setting message M905 to the central management device 103.

5 [0074]

Having received the password setting message M905, the central management device 103 transmits a registration data receiving message M906 to the keyboard 208 with display in order to inform that the
10 collection registration mode has been started, and also transmits an information signal M907 for registration to the master communication control device 101. Thus the sequence enters a waiting state for waiting for a response from the master
15 communication control device 101.

[0075]

On the other hand, in order that the master communication control device 101 can shift to the registration mode independently from the central
20 management device 103, a registration start message M908 is transmitted from the keyboard 408 with display to the master communication control device 101.

[0076]

25 Having received the registration start message M908, the master communication control device 101 returns a registration mode? input message M909,

requesting the input of the registration mode?, to the keyboard 408 with display. Having received the registration mode? input message M909, the keyboard 408 with display transmits a collection reception
5 start message M910 to the master communication control device 101. Having received the collective reception start message M910, the master communication control device 101 returns a password? input message M911, requesting the input of the
10 password, to the keyboard 408 with display, which in response displays a password input image. When the operator enters the password, the keyboard 408 with display transmits a password setting message M912 to the master communication control device 101.

15 [0077]

Having received the password setting message M912, the master communication control device 101 transmits a registration data receiving message M913 to the keyboard 408 with display in order to inform
20 the start of the collective registration mode and initiates the CS search on the information signal for registration informed from the central management device 103.

[0078]

25 In case the CS search identifies the information signal for registration in the master communication control device 101, the master communication control

device 101 executes transmission process of the identification data after the establishment of the wireless channel. Also the central management device 103 executes a process of registering the
5 identification data in the non-volatile memory unit 207 by the data writing sequence M914, thereby reconstructing the data as shown in Fig. 3 in the non-volatile memory unit 207 of the new central management device 103.

10 [0079]

When the registration process by the data writing sequence M914 is completed, registration success messages M915, M916 are respectively transmitted from the master communication control
15 device 101 to the keyboard 408 with display and from the central management device 103 to the keyboard 208 with display, thereby informing the completion of the collective registration process.

[0080]

20 The present embodiment provides effects similar to those in the first embodiment, with respect to the registration in the new central management device. Also the configuration is not complicated because the master communication control device 101 is specified
25 and the PS and CS identifiers stored therein are transferred to the new central management device 103. It is therefore rendered possible to easily achieve

maintenance and restoration of the system with a simple configuration and within a short time.

[0081]

(Third Embodiment)

5 The third embodiment of the present invention will be described with reference to Figs. 1 to 4 and 9.

[0082]

10 In the present embodiment, the new central management device 103 acquires the PS identifier and the CS identifier from the specific communication control device 101, as well as the second embodiment. However, the communication between the specified communication control device 101 and the central
15 management device 103 is executed in a slave-to-slave direction communication mode in the wireless PHS data communication. This is different from the second embodiment. Therefore, such embodiment is similar to the first and second embodiments in the basic
20 configuration but is different therefrom in the registration data transmission/reception process.

[0083]

25 Fig. 9 is a sequence chart showing the registration data transmission/reception process executed between the central management device 103 and the communication control device 101 in the present embodiment.

[0084]

As in the second embodiment, the communication control device 101 used in the present sequence is, among the plural communication control devices 101, a particular communication control device holding in advance the identification data (Fig. 3) of the PS identifiers of all the communication control devices 101 and the CS identifier of the central management device 103, and is called a master slave device. The communication control device 101, constituting the master slave device (hereinafter called "master communication control device 101"), can be arbitrarily selected and stores, in the non-volatile memory unit 407, the PS and CS identifiers. There may also be provided two or more master communication control devices 101.

[0085]

In case the currently used central management device 103 is replaced by another central management device of the same configuration for some reason, the new central management device 103 is shifted to a slave mode and the process thereafter is executed according to the sequence chart of the registration data transmission/reception process shown in Fig. 9. In order to execute the present sequence, the central management device 103 and the master communication control device 101 respectively execute predetermined

processes as in the first and second embodiments.

[0086]

At first, in order to establish an extension-to-extension call to the master communication control
5 device 101 from the new central management device 103,
the operator transmits an extension number setting
message M1001. The central management device 103
transmits a SCCH call message M1002 in order to
establish a call to the master communication control
10 device 101.

[0087]

The master communication control device 101,
having started a call search in advance, upon
receiving the call message M1002 including the
15 extension number of the device 101, transmits a SCCH
synchronization message to the keyboard 408 with
display connected to the master communication control
device 101 and also exchanges SCCH synchronization
messages with the central management device 103,
20 thereby establishing a synchronization mode.

[0088]

On the other hand, having received an incoming
call message M1003, the keyboard 408 with display
transmits a response request message M1006 to the
25 master communication control device 101. Having
received the response request message M1006, the
master communication control device 101 transmits a

SCCH response message M1007 to the central management device 103 and also exchanges TCH idle burst messages M1009, M1010 with the central management device 103, thereby establishing a TCH synchronization mode. Also
5 the keyboard 408 with display transmits a communicating message M1011 to the keyboard 408 with display in order to inform the shift to the communicating state.
[0089]

10 Having received the response message M1007 from the master communication control device 101, the central management device 103 exchanges the TCH burst messages M1009, M1010 with the master communication control device 101 to establish the TCH
15 synchronization mode, and transmits a communicating message M1012 to the keyboard 208 with display in order to inform the shift to the communicating state. Thereafter the master communication control device 101 and the central management device 103 shift to a
20 communicating state M1013.
[0090]

Having received the communicating message M1012, the keyboard 208 with display activates an identification data registering process in the master
25 communication control device 101, in order to re-register the CS and PS identifiers. More specifically, at first a collective reception start message M1014

is transmitted to the central management device 103.
Having received the collective reception start
message M1014, the central management device 103
returns a password? input message M1015 for
5 requesting the input of the password to the keyboard
208 with display, which in response displays a
password input image. When the operator enters the
password, the keyboard 208 with display transmits a
password setting message M1016 to the central
10 management device 103.
[0091]

Having received the password setting message
M1016, the central management device 103 transmits a
registration mode start message M1018 to the keyboard
15 208 with display in order to inform the start of the
collective registration mode, and also transmits an
identification data collective transmission request
data M1017 to the master communication control device
101. Having received the identification data
20 collective transmission request message M1017, the
master communication control device 101 transmits an
identification data request message M1019 to the
keyboard 408 with display. Having received the
identification data request message M1019, the
25 keyboard 408 with display transmits a collective
transmission request message M1020 to the master
communication control device 101.

[0092]

Having received the collective transmission request message M1020, the master communication control device 101 returns a password input message

5 M1021, requesting the input of the password, to the keyboard 408 with display,, which in response displays a password input image. When the operator enters the password, the keyboard 408 with display transmits a password setting message M1022 to the

10 master communication control device 101.

[0093]

Having received the password setting message M1022, the master communication control device 101 transmits a collective transmission permitting

15 message M1023 to the central management device 103 in order to inform the acceptance of the request for collective registration, and also transmits a registration mode start message M1024 to the keyboard 408 with display, in order to inform the start of the

20 collective registration mode.

[0094]

Thereafter, the transmission process in the master communication control device 101 and the registration process in the central management device

25 103 are respectively executed according to a data writing sequence M1025, thereby reconstructing the data as shown in Fig. 3, in the non-volatile memory

unit 207 of the new central management device 103.

[0095]

When the registration process by the data
writing sequence M1025 is completed, registration
5 success messages M1026, M1027 are respectively
transmitted from the master communication control
device 101 to the keyboard 408 with display and from
the central management device 103 to the keyboard 208
with display, thereby informing the completion of the
10 collective registration process.

[0096]

On the other hand, in case the collective
transmission permitting message M1023 is not
transmitted to the collective management device 103,
15 namely in case the collective registration process is
not permitted, the central management device 103
activates a disconnection/restoration process.

[0097]

The present embodiment provides effects similar
20 to those in the second embodiment. Also the
configuration can be further simplified since the
slave-to-slave direct communication mode in the
wireless PHS data communication is employed between
the new central management device 103 and the master
25 communication control device 101.

[0098]

(Fourth Embodiment)

In the present embodiment, the new central management device 103 acquires the PS and CS identifiers from the non-volatile memory unit 207 of the central management device 103 prior to the replacement, not from the management center 105 and the master communication control device 101. In the present embodiment, there is provided unrepresented detaching means so as that the non-volatile memory unit 207 can be detached from or attached to the central management device 103. Other configurations are similar to those shown in Figs. 1 to 4. The non-volatile memory unit 207 is advantageously constructed by a hard disk or a ROM, but such configuration is not restrictive.

[0099]

In case the currently used central management device 103 is replaced by another central management device of the same configuration for some reason, the non-volatile memory unit 207 is detached, with the CS and PS identifiers stored therein, from the central management device 103 prior to the replacement and is attached to the new central management device 103. The new central management device 103 can immediately utilize the CS and PS identifiers stored in thus attached non-volatile memory unit 207, whereby the system can be restored.

[0100]

The present embodiment provides effects similar to those in the first embodiment, with respect to the registration in the new central management device.

[0101]

5 The foregoing embodiments have been explained by a remote management system based on the PHS communication, but such configuration is not restrictive and they are applicable to any wireless telephone system consisting of plural slave devices
10 and a master device capable of registering and connecting such slave devices, regardless whether the process signal is analog or digital. Also the embodiments can be subjected to various modifications within the scope of the present invention.

15 [0102]

Also the peripheral device has been exemplified by the copying machine 106, but such example is not restrictive and the present invention is applicable to any device requiring remote control.

20 [0103]

In the first to third embodiments, both the CS and PS identifiers are downloaded from the management center 105 or the master communication control device 101, but they have respectively different
25 transmission sources such as downloading the CS identifier from the management center 105 and downloading the PS identifiers from the master

communication control device 101.

[0104]

The objects of the present invention can be realized also by supplying the central management
5 device 103, the management center 105 and the communication control device 101 with a memory medium storing program codes of a software realizing the functions of the aforementioned embodiments and by
10 reading and executing the program codes stored in the memory medium by computers (or CPU or MPU) of such devices.

[0105]

In such case, the program codes themselves read from the memory medium realize the novel functions of
15 the present invention, and the memory medium storing such program codes constitutes the present invention.

[0106]

The memory medium for supplying the program codes can be, for example, a floppy disk, a hard disk,
20 an optical disk, a magnetooptical disk, a CD-ROM, a CD-R, a magnetic tape, a non-volatile memory card or a ROM.

[0107]

Also, it is needless to say that the present
25 includes not only a case where the computer executes the read program codes thereby realizing the functions of the aforementioned embodiments but also

a case where an operating system or the like functioning on the computer executes all the processes or a part thereof under the instruction of such program codes thereby realizing the functions of the aforementioned embodiments.

[0108]

Also, it is needless to say that the present invention further includes a case where the program codes read from the memory medium are once stored in a function expansion board inserted into the computer or a function expansion unit connected thereto and a CPU or the like provided in such function expansion board or function expansion unit executes all the processes or a part thereof under the instruction of such program codes, thereby realizing the functions of the aforementioned embodiments.

[0109]

[Effect of the Invention]

As described above, according to the present invention, it is rendered possible to easily achieve maintenance and restoration of the system with a simple configuration and within a short time.

[0110]

Also, in the replacement to the new central management device, the acquisition of the necessary data can be facilitated to achieve maintenance and restoration of the system easily within a short time.

[0111]

Also, the acquisition of the necessary data can be effectively facilitated to achieve maintenance and restoration of the system easily within a short time.

5 [0112]

Also, it is possible with a simple configuration to achieve maintenance and restoration of the system easily within a short time.

10 [Brief Description of the Drawings]

Fig. 1 is a block diagram showing the entire configuration of a central management system for peripheral devices constituting a first embodiment of the present invention;

15 Fig. 2 is a block diagram showing the configuration of a central management device in the first embodiment;

Fig. 3 is a view showing the data configuration in a non-volatile memory of the central management device in the first embodiment;

20 Fig. 4 is a block diagram showing the configuration of a communication control device in the first embodiment;

Fig. 5 is a sequence chart of a registration data transmission/reception process between a management center and a central management device in the first embodiment;

Fig. 6 is a flow chart showing a process executed in the management center in a registration data transmission/reception process in the first embodiment;

5 Fig. 7 is a flow chart showing a process executed in the central management device in the registration data transmission/reception process in the first embodiment;

10 Fig. 8 is a sequence chart of a registration data transmission/reception process between the central management device and the communication control device in a second embodiment of the present invention;

15 Fig. 9 is a sequence chart of a registration data transmission/reception process between the central management device and the communication control device in a third embodiment of the present invention;

20 Fig. 10 is a view showing the entire configuration of a conventional remote central management system for copying machines;

Fig. 11 is a sequence chart of registration in a remote central management system;

25 Fig. 12 is a sequence chart of registration (continuous registration) in a remote central management system; and

Fig. 13 is a block diagram showing the

configuration of the management center.

[Description of Reference Numerals of Symbols]

- 101 ... communication control device
- 5 102 ... modem
- 103 ... central management device
- 104 ... communication network
- 105 ... management center
- 106 ... copy machine (peripheral device)
- 10 107 ... telephone line
- 108 ... line control device (identifier data
transfer means)
- 109 ... personal computer (PC) (identifier data
center holding means)
- 15 201 ... control unit (identifier data storage
means)
- 202 ... non-volatile memory unit (storage unit)
- 208 ... keyboard with display
- 401 ... control unit (part of identifier slave
holding means)
- 20 407 ... non-volatile memory unit (part of
identifier data slave holding means)
- 408 ... keyboard with display

[Document Title] Abstract

[Abstract]

[Object] The present invention provides central management system, method and storage medium for
5 peripheral devices, capable of executing maintenance and restoration of a system easily in a short time.

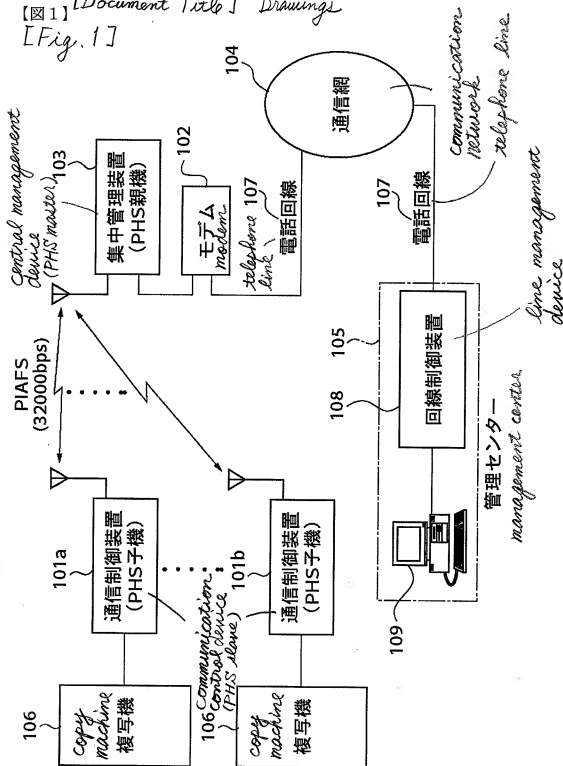
[Structure]

A copy machine 106 is communicably connected to a central management device 103 through a
10 communication control device 101 by PIAFS, and the central management device 103 is connected to a management center 105 through a telephone line 107 and a communication network 104. A CE identifier and a PS identifier (registration data) for identifying
15 the central management device 103 itself and each communication control device 101 registered are arranged in a non-volatile memory unit 207 of the central management device 103, and remote management is executed by the management center 105 based on the
20 registration data. The registration data is stored also on the side of the management center 105. In case of replacing the current central management device 103 with a new central management device, the registration data is transferred from the management
25 center 105 to the new central management device through the communication network 104, and then reconstructed on the non-volatile memory unit 207.

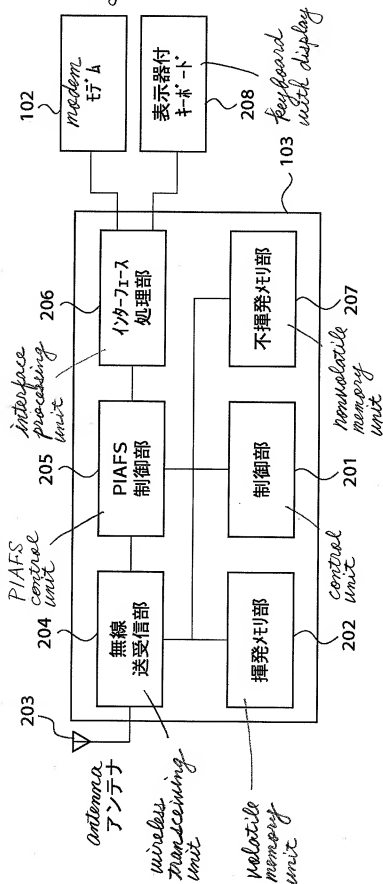
[Selective Drawing] Fig. 5

【書類名】 図面

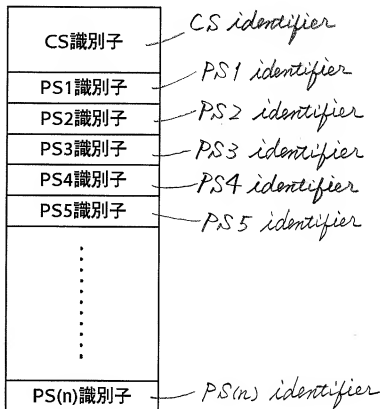
【図1】 [Document Title] Drawings
[Fig. 1]



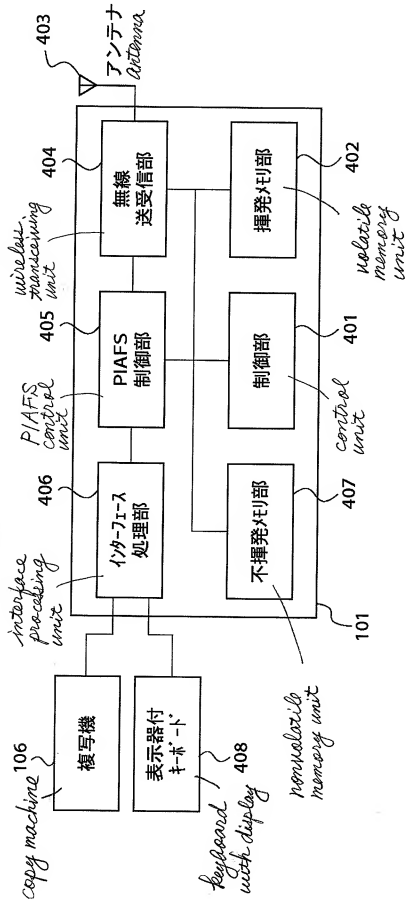
【図2】[Fig. 2]



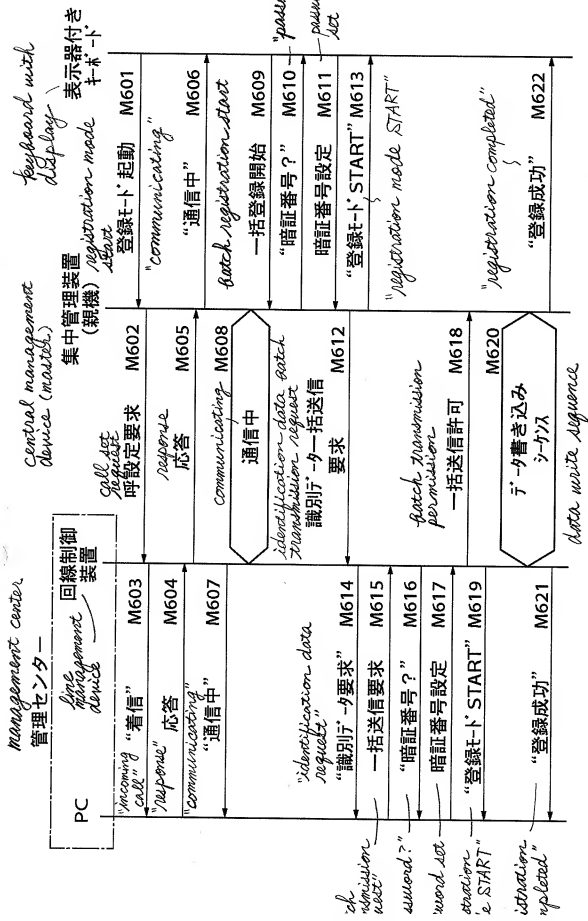
【図3】 [Fig. 3]

不揮発メモリ部 207 *nonvolatile memory unit 207*

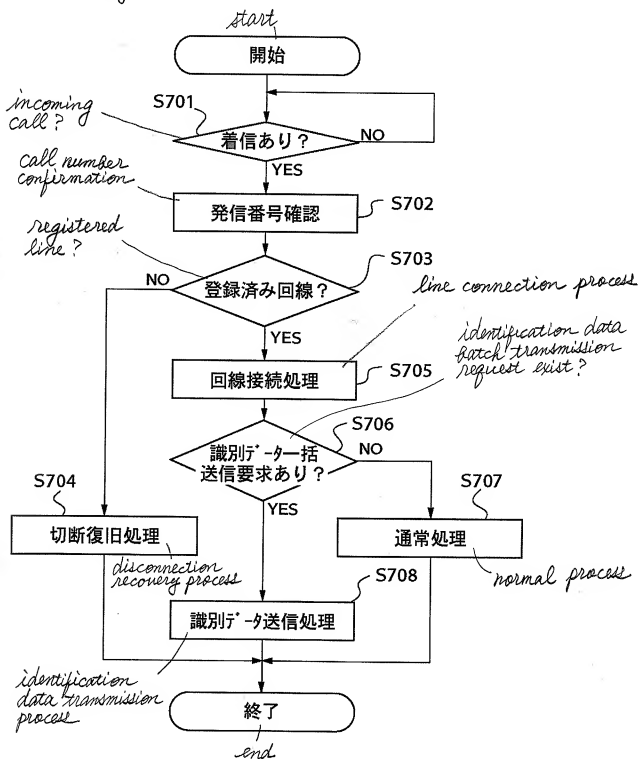
【図4】 [Fig. 4]



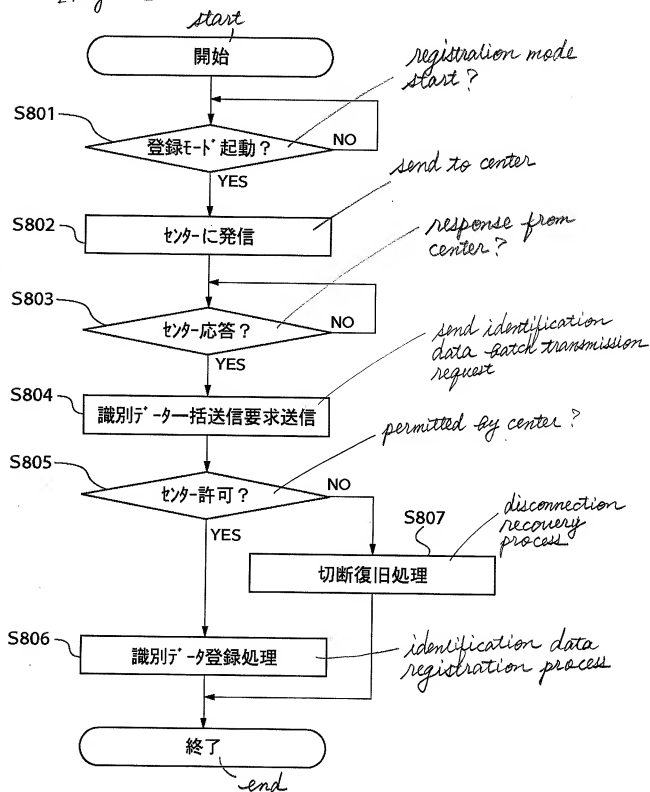
【図5】 [Fig.5]



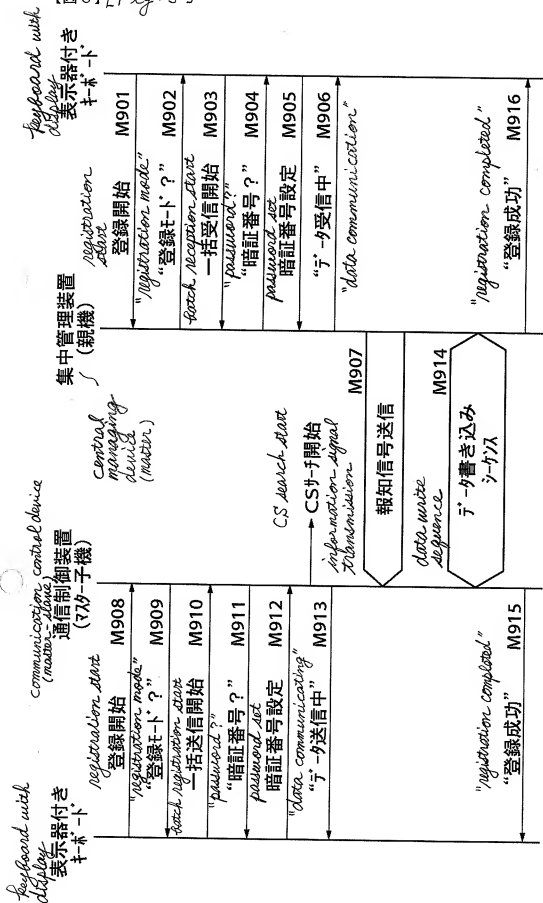
【図6】 [Fig. 6]



【図7】 [Fig. 7]



[図8] [Fig. 8]



[図11] [Fig. 11]

